

be so constructed or secured as to prevent accidental boom movement.

(4) Platforms or devices used to hoist employees shall be inspected for defects before each day's use and shall be removed from service if defective.

(5) Employees being hoisted shall remain in continuous sight of and communication with the operator or signalman.

(6) Operators shall remain at the controls when employees are hoisted.

(7) Cranes shall not travel while employees are hoisted, except in emergency or in normal tier to tier transfer of employees during container operations.

(8) When intermodal container spreaders are used to transfer employees to or from the tops of containers, the spreaders shall be equipped with a personnel platform equipped with fixed railings, provided that the railings have one or more openings for access. The openings shall be fitted with a means of closure, such as chains with hooks. Existing railings shall be at least 36 inches (0.91 m) in height. New railings installed after October 3, 1983 shall be 42 inches (1.07 m), plus or minus 3 inches (7.62 cm), in height. The provisions of paragraphs (j)(1)(iii)(C), (j)(1)(iii)(D), and (j)(1)(iii)(F) of this section also apply to personnel platforms when such container spreaders are used.

(9) Employees shall not be hoisted on intermodal container spreaders while a load is engaged.

(10) All cranes and derricks used to hoist personnel shall be equipped with an anti-two-blocking device.

(k) *Routine inspection.* (1) Designated persons shall visually inspect each crane and derrick on each day of use for defects in functional operating components and shall report any defect found to the employer. The employer shall inform the operator of the findings.

(2) A designated person shall thoroughly inspect all functional components and accessible structural features of each crane or device at monthly intervals.

(3) Any defects found during such inspections which may create a safety hazard shall be corrected before further

equipment use. Repairs shall be performed only by designated persons.

(4) A record of monthly inspections shall be maintained for six months in or on the crane or derrick or at the terminal.

[48 FR 30909, July 5, 1983, as amended at 62 FR 40199, July 25, 1997; 65 FR 40940, June 30, 2000]

§ 1917.46 Load indicating devices.

(a)(1) Except as provided in paragraph (a)(1)(viii) of this section, every crane after October 3, 1984 shall be fitted with a load indicating device or alternative device in proper working condition which shall meet the following criteria:

(i) The type or model or any load indicating or alternate device which is used shall provide:

(A) A direct indication in the cab of actual weight hoisted or a means of determining this by referencing a weight indication to crane ratings posted and visible to the operator, except that the use of a dynamometer or simple scale alone will not meet this requirement; or

(B) Indications in the cab according to the radius and load at the moment; or

(C) A direct means to prevent an overload from occurring.

(ii) The accuracy of the load indicating device, weight-moment device, or overload protection device shall be such that any indicated load (or limit), including the sum of actual weight hoisted and additional equipment or "add ons" such as slings, sensors, blocks, etc., is within the range between 95 percent (5 percent underload) and 110 percent (10 percent overload) of the actual true total load. Such accuracy shall be required over the range of daily operating variables reasonably anticipated under the conditions of use.

(iii) The device shall permit the operator to determine, before making any lift, that the indicating or substitute system is operative. In the alternative, if a device is so mounted or attached to preclude such a determination, it may not be used unless it has been certified

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by the manufacturer to remain operable within the limits stated in paragraph (a)(1)(ii) of this section for a specific period of use. Checks for accuracy, using known values of load, shall be performed at the time of every certification survey (see § 1917.50) and at such additional times as may be recommended by the manufacturer.

(iv) When a load indicating device or alternative system is so arranged in the supporting system (crane structure) that its failure could cause the load to be dropped, its strength shall not be the limiting factor of the supporting system (crane structure).

(v) Marking shall be conspicuously placed giving: units of measure in pounds or both pounds and kilograms, capacity of the indicating system, accuracy of the indicating system, and operating instructions and precautions. In the case of systems utilizing indications other than actual weights, the marking shall include data on: the means of measurement, capacity of the system, accuracy of the system, and operating instructions and precautions. If the system used provides no readout, but is such as to automatically cease crane operation when the rated load limit under any specific condition of use is reached, marking shall be provided giving the make and model of the device installed, a description of what it does, how it is operated, and any necessary precautions regarding the system. All weight indications, other types of loading indications, and other data required shall be readily visible to the operator.

(vi) All load indicating devices shall be operative over the full operating radius. Overall accuracy shall be based on actual applied load and not on full scale (full capacity) load.

EXPLANATORY NOTE: For example, if accuracy of the load indicating device is based on full scale load and the device is arbitrarily set at plus/minus 10 percent, it would accept a reading between 90,000 and 110,000 lbs., at full capacity of a machine with 100,000 lbs., maximum rating, but would also allow a reading between zero and 20,000 lbs., at that outreach (radius) at which the rating would be 10,000 lbs., capacity—an unacceptable figure. If, however, accuracy is based on actual applied load under the same conditions, the acceptable range would remain the same with the 100,000-lb. load but becomes a figure

between 9,000 and 11,000 lbs., a much different and acceptable condition, at the 10,000-lb. load.

(vii) When the device uses the radius as a factor in its use or in its operating indications, the indicated radius (which may be in feet and/or meters, or degrees of boom angle, depending on the system used) shall be a figure which is within the range of a figure no greater than 110 percent of the actual radius to a figure which is no less than 97 percent of the actual (true) radius. A conversion chart shall be provided whenever it is necessary to convert between degrees of radius and feet or meters.

(viii) The load indicating device requirements of this subparagraph do not apply to a crane:

(A) Of trolley equipped bridge type or overhead type while handling intermodal containers known to be identified as empty, or loaded, and in either case in compliance with the provisions of § 1917.71, or while hoisting other lifts by means of a lifting beam supplied by the crane manufacturer for the purpose, and in all cases within the crane rating;

(B) While handling bulk commodities or cargoes by means of clamshell bucket or magnet;

(C) While used to handle or hold hoses in connection with transfer of bulk liquids or other hose handled products; or

(D) While the crane is used exclusively to handle cargo or equipment the total actual gross weight of which is known by means of marking of the unit or units hoisted, when such total actual gross weight never exceeds 11,200 lbs., and when 11,200 lbs., is less than the rated capacity of the crane at the maximum outreach that is possible under the conditions of use at the time.

[48 FR 30909, July 5, 1983, as amended at 62 FR 40199, July 25, 1997]

§ 1917.47 Winches.

(a) Moving winch parts which present caught-in hazards to employees shall be guarded.

(b) Winches shall have clearly identifiable and readily accessible stop controls.